

CLAIMS

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1. A transmission method in a wireless communication system, the transmission method comprising the steps of:
 - 5 pre-programming each of a plurality of wireless communication units with a plurality of orthogonal codes corresponding to a plurality of canned messages, the plurality of orthogonal codes chosen such that when a group of different canned messages are received simultaneously by a wireless processing device of the wireless communication system, thereby producing an interference symbol pattern, the interference symbol pattern provides a non-zero probability of correctly decoding at least some of said group, and a substantially zero probability of erroneously decoding a canned message not in said group;
 - 10 detecting, by a portion of the plurality of wireless communication units, a triggering event that does not originate from, and is not controlled by, the wireless communication system;
 - 15 selecting, by each of said portion, one of the plurality of canned messages as a selected message to be transmitted in response to the triggering event; and
 - 20 transmitting, by each of said portion, one of the plurality of orthogonal codes corresponding to the selected message during a randomly-selected slotted-aloha time slot.
2. The transmission method of claim 1, further comprising in the wireless processing device the steps of:
 - 25 receiving at least two different canned messages sent simultaneously during a single time slot, thereby producing the interference symbol pattern; and
 - 30 decoding at least some of the at least two different canned messages from the interference symbol pattern.

3. The transmission method of claim 1, further comprising in the wireless processing device the steps of:

receiving at least two identical canned messages sent simultaneously during a single time slot, thereby producing a reinforced symbol pattern; and

5 decoding, from the reinforced symbol pattern, one of the plurality of canned messages received.

4. The transmission method of claim 1, wherein the transmitting step further comprises the step of transmitting, by some of said portion, additional data along 10 with the one of the plurality of orthogonal codes.

5. The transmission method of claim 1, further comprising in the wireless processing device the steps of:

15 determining that one of the plurality of canned messages has been transmitted by at least one of the plurality of wireless communication units; and

sending a broadcast message directing any of the plurality of wireless communication units that transmitted the one of the plurality of canned messages to identify themselves during a predetermined set of slotted aloha time slots on a predetermined communication channel.

20 6. The transmission method of claim 1, further comprising in the wireless processing device the steps of:

determining that one of the plurality of canned messages has been transmitted by at least one of the plurality of wireless communication units; and

25 sending a broadcast message indicating that the one of the plurality of canned messages has been received and that senders are to cease transmission unless explicitly instructed to do so by the wireless processing device.

7 The transmission method of claim 1, further comprising in one of the plurality of wireless communication units the steps of:

10 producing a first generation of the canned message in response to the triggering event; and

5 preventing a second generation of the canned message for a predetermined time period after the first generation.

8. The transmission method of claim 1, further comprising in the wireless processing device the steps of:

10 determining that one of the plurality of canned messages has been transmitted by at least one of the plurality of wireless communication units; and

15 sending a broadcast message indicating that the one of the plurality of canned messages has been received and that senders are not to initiate a newly triggered generation of the one of the plurality of canned messages until notified by the wireless processing device.

9. The transmission method of claim 1, further comprising in the wireless processing device the step of selectively controlling specific ones of the plurality of wireless communication units as to whether the specific ones are allowed to generate one of the plurality of canned messages.

20 10. The transmission method of claim 1,

wherein the wireless processing device is coupled to a plurality of receivers, and

25 wherein the transmission method further comprises in the wireless processing device the step of examining canned messages received at multiple ones of the plurality of receivers to extract additional information about the canned messages received.

11. A wireless communication unit in a wireless communication system, comprising:

a transceiver for providing communications with other wireless devices in the wireless communication system;

5 a processor coupled to the transceiver for processing the communications;

a memory coupled to the processor for storing operating variables and software for programming the processor;

a clock coupled to the processor for providing a time signal; and

10 a control interface coupled to the processor for controlling the wireless communication unit,

wherein the memory is pre-programmed with a plurality of orthogonal codes corresponding to a plurality of canned messages, the plurality of orthogonal codes chosen such that when a group of different canned messages are received

15 simultaneously by a wireless processing device of the wireless communication system, thereby producing an interference symbol pattern, the interference symbol pattern provides a non-zero probability of correctly decoding at least some of said group, and a substantially zero probability of erroneously decoding a canned message not in said group, and

20 wherein the processor is programmed to:

cooperate with the control interface to detect a triggering event that does not originate from, and is not controlled by, the wireless communication system;

25 select one of the plurality of canned messages as a selected message to be transmitted in response to the triggering event; and

cooperate with the transceiver to transmit one of the plurality of orthogonal codes corresponding to the selected message during a randomly-selected slotted-aloha time slot.

30 12. The wireless communication unit of claim 11, wherein the processor is further programmed to cooperate with the transceiver to transmit additional data along with the one of the plurality of orthogonal codes.

13. The wireless communication unit of claim 11, wherein the processor is further programmed to:

- 5 save a time-stamped record in the memory whenever the processor transmits the selected message;
- receive a broadcast message directing any of a plurality of wireless communication units that transmitted the one of the plurality of canned messages to behave in a specified manner;
- 10 check the time-stamped record to determine whether the one of the plurality of canned messages was transmitted by the wireless communication unit less than a predetermined time ago; and
- when the check is positive, behave in the specified manner.

14. The wireless communication unit of claim 11, wherein the processor is further programmed to:

- 15 produce a first generation of the canned message in response to the triggering event; and
- prevent a second generation of the canned message for a predetermined time period after the first generation.

20 15. The wireless communication unit of claim 11, wherein the processor is further programmed to:

- cooperate with the transceiver to receive from the wireless processing device a message for selectively controlling the wireless communication unit as to whether
- 25 the wireless communication unit is allowed to generate one of the plurality of canned messages.

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16. A wireless processing device in a wireless communication system for decoding a plurality of canned messages, the wireless processing device comprising:
a transceiver for receiving the plurality of canned messages; and
a processor coupled to the transceiver for processing the plurality of canned messages, wherein the plurality of canned messages are represented by a corresponding plurality of orthogonal codes chosen such that when a group of different canned messages are received simultaneously by the wireless processing device, thereby producing an interference symbol pattern, the interference symbol pattern provides a non-zero probability of correctly decoding at least some of said group, and a substantially zero probability of erroneously decoding a canned message not in said group, and

wherein the processor is programmed to:

cooperate with the transceiver to receive at least two different canned messages sent during a single time slot, thereby producing the interference symbol pattern; and

decode at least some of the at least two different canned messages from the interference symbol pattern.

17. The wireless processing device of claim 16, wherein the processor is further programmed to:
cooperate with the transceiver to receive at least two identical canned messages sent simultaneously during the single time slot, thereby producing a reinforced symbol pattern; and
decode, from the reinforced symbol pattern, one of the plurality of canned messages received.

18. The wireless processing device of claim 16, wherein the processor is further programmed to:

decode additional data received along with one of the plurality of orthogonal codes.

19. The wireless processing device of claim 16, wherein the processor is further programmed to:

cooperate with the transceiver to receive and decode one of the plurality of canned messages, and

cooperate further with the transceiver to transmit a broadcast message directing any of a plurality of wireless communication units that transmitted the one of the plurality of canned messages to behave in a specified manner.

20. The wireless processing device of claim 16, wherein the processor is further programmed to:

cooperate with the transceiver to transmit messages to selectively control specific ones of a plurality of wireless communication units as to whether the specific ones are allowed to generate one of the plurality of canned messages.

21. The wireless processing device of claim 16, further comprising a network interface coupled to the processor and coupled to a network for communicating with the network.

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